



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,622	10/22/2003	Yong Il Doh	8733.232.10-US	4808

30827 7590 08/09/2004

MCKENNA LONG & ALDRIDGE LLP  
1900 K STREET, NW  
WASHINGTON, DC 20006

EXAMINER

MACARTHUR, SYLVIA

ART UNIT	PAPER NUMBER
----------	--------------

1763

DATE MAILED: 08/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/689,622	<b>Applicant(s)</b> DOH, YONG IL	
	<b>Examiner</b> Sylvia R MacArthur	<b>Art Unit</b> 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7,10-17,20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,10-17,20 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/22/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 10, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wessells et al (US 3,661,660) in view of Barbee et al (US 5,456,788).

Regarding claims 1 and 11: Wessells et al teaches an etching bath 10 containing an etchant, a holder 60, and ultrasonic generators (transducers 14, 16, and 18).

Fig. 1 illustrates that the transducers are located in the interior of the bath.

Wessells et al fails to teach an indicator displaying a temperature of the etching bath.

Barbee teaches an apparatus for real-time in-situ monitoring of a chemical etching process using a control means 34 that comprises a computer. Fig. 1 illustrates that the computer further comprises a monitor (indicator) that is obviously capable of displaying a temperature of the etching bath.

The motivation to provide the computer of Wessells et al is that it provides in-situ monitoring of a chemical etching.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus of Wessells et al et al to incorporate a computer as taught by Barbee et al.

Art Unit: 1763

Regarding claims 10 and 20: Wessells et al teaches that the holder 60 is located in the interior of the etching bath.

3. Claims 2-4, 6, 7, 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wessells et al in view of Barbee et al as applied to claims 1, 10, 11, and 20 above, and further in view of Schnegg et al (US 4,971,654).

The teachings of Wessells et al and Barbee et al were discussed above.

Regarding claims 2 and 14: Both fail to teach that the etchant is HF.

Schnegg teaches an etching apparatus using hydrofluoric acid as the etchant.

The motivation to use HF is that is a strong acid that dissolves the oxidation product.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide HF as the etchant in the apparatus of Wessells et al modified by Barbee et al.

Regarding claims 3, 4, 15, and 16: Wessells et al and Barbee et al fail to teach the holder is made of PTFE.

Col. 6 lines 48-52 of Schnegg teaches the processing boat is manufactured from PTFE.

Schnegg teaches that the PTFE is a suitable material for construction of the boat (holder) as it is inert to the etchant and the harsh etchant environment.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus of Wessells et al modified by Barbee et al to manufacture the holder of PTFE as taught by Schnegg.

Art Unit: 1763

Regarding claims 6 and 11: Wessells et al and Barbee et al fail to teach a thermostat (temperature sensor).

Schnegg teaches a thermostat (temperature sensor) in col.4 lines 30-32. The motivation to provide a thermostat is that it ensures that the temperature (a critical processing parameter in etching) is controlled.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus of Chough to provide a thermostat for temperature control.

Regarding claim 17: The holder supports a plurality of glass substrates. Though Wessells et al and Barbee et al does not specify that the substrates are made of glass. Nevertheless the apparatus of Wessells et al and Barbee et al is inherently capable of performing processing upon glass substrates.

4. Claims 5, 12, 13, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable et al in view of Barbee et al as applied to claims 1, 10, 11, and 20 above, and further in view of in view of Kanda (US 4,338,157).

The teachings of Wessells et al and Barbee et al were discussed above.

Regarding claim 5: Both fail to teach a thermometer.

A thermocouple is an art recognized equivalent of a thermometer.

Kanda teaches in col. 9 lines 57-60 that the temperature of the etching solution is measured by a thermocouple 52. The motivation to provide a thermocouple in the apparatus of Chough or Wessells is to provide a means of measuring the temperature during processing. Thus, it would

Art Unit: 1763

have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide the apparatus of Wessells et al modified by Barbee et al with a thermocouple.

Regarding claims 12 and 13: Both fail to teach a control unit.

Kanda teaches that processing unit 47 is provided. This processing unit (a computer) reads the data, stores the data, and computes the etching termination point as discussed in vol. 9 and 10.

The motivation to provide the apparatus of Wessells et al modified by Barbee et al with a process control device.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a processing unit in the apparatus of Wessells et al in view of Barbee et al.

Regarding claim 21: Both fail to teach a temperature indicator. The processing unit is provided with a indicator to display the temperature data. The motivation to provide the apparatus of Wessells et al modified by Barbee et al with such an indicator is to provide the operator with a means to monitor the process.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide the processing unit with an indicator.

#### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-7, 10-17, 20, and 21 have been considered, but are moot in view of the new ground(s) of rejection.

Art Unit: 1763

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


#### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the core hours of 8 a.m. and 2 p.m.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1763

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sylvia R MacArthur  
Patent Examiner  
Art Unit 1763

August 2, 2004

  
GREGORY MILLS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700